Late Neolithic Textile Industry in Central Balkans:
Picking up the Pieces

Since textile is an extremely fragile organic material, which means it barely leaves any trace in the archaeological record, it was a neglected area of research for a long period of time. However, with the development of new methods and new questions arising, textile has been given a fresh opportunity to demonstrate its significance in archaeological investigations. Today, the research on textile addresses issues of technology, production and the distribution of textile and textile tools, along with the social and economic structure of prehistoric societies, using a multidisciplinary approach that integrates archaeobotanical and archaeozoological analyses, palaeoeological and geochemical investigations, experimental work and ethnographic knowledge gathered from all over the world. The growing interest led to the foundation of one of the most prominent institutions on textile research – CTR, at the Saxo Institute, University of Copenhagen, in 2005, which resulted in a great number of conferences, workshops, monographs and papers and, recently, in the establishment of the first Department for Textile Archaeology in the world in 2015, again at the Saxo Institute, University of Copenhagen. Today, the production of textile, an object of both utilitarian and symbolic significance and each step of its chaîne-opératoire is highly regarded as one of the most important crafts in human history, closely related to agriculture, animal husbandry and the cultivation of plants, which is able to, more than any other archaeological material, offer an intimate insight into the daily life of prehistoric people.

2 Danish National Research Foundation’s Centre for Textile Research.
However, when it comes to textile in the Late Neolithic in the Central Balkans, little has been written about the very process of spinning or weaving or the tools that were used. While it was assumed that the craft itself was “rich” and “developed” and even “well-known”, there have actually been very few attempts to test these hypotheses on archaeological material. The fundamental problem for textile research in the Central Balkans is that the remains are invisible in the archaeological record and, at the same time, very little attention has been specifically devoted to the subject. The author has already stressed the underrepresentation of textile and textile tools from the Late Neolithic contexts in the Central Balkans, where the given critical summary of the relevant literature made clear that textile research has been overwhelmed by the above mentioned facts. A variety of clay, stone or bone tools were rather observed as single finds, not as the remains of specific past activity.

Bearing all this in mind, the fact that we have to rely on indirect evidence does not mean that we cannot make the most of the information from the finds related to production of textile. Therefore, the starting premise in the new investigations on textile in the Central Balkans is that the tools used for the preparation and production of textile are much more common than previously thought.

In order to put things into a more positive perspective, the identification of various textile tools is of major importance. B. İdvoresan-Stefanović gave a detailed overview through ethnographic literature related to spinning and weaving practices in Serbia, showing how various tools and techniques have evolved over time.

A recent contribution to the subject has been made with the analysis of prehistoric bone assemblages, which have demonstrated that, apart from sewing needles, a number of use-ware traces on various bone artefacts indicate the processing of organic materials, which therefore means they could be attributed to textile tools. In addition, it was shown that various stone tools could be identified among archaeological artefacts as well, like for example mallets for splitting and softening bast fibres. Likewise, archaeobotanical analyses have shown promising results. At the Late Neolithic sites of Vinča–Belo Brdo, Opovo, Gomolava and Drenovac the presence of flax seeds have been identified which are considered to be one of the most important indicators for prehistoric textile production. Still, on the other hand, the presence of flax seeds cannot be regarded as direct evidence for textile production due to flax’s twofold nature, but it certainly deserves further examination along with other archaeological data. For example, the morphometric analysis of flax seeds from the Late Neolithic wetland settlements in southeast Germany showed that different varieties of flax, for oil and for fibre, were grown in the Late Neolithic, demonstrating the importance of measuring archaeobotanical remains.

However, when considering the largest category of finds related to textiles, namely spindle whorls and loom weights, little work has been done. Moreover, the difference between the two given tools is not always clear. The tendency has been to simply presume, based on rather superficial looks at these finds, to which category they can be attributed. Except for the analysis of an assemblage of loom weights from the site of Crkvine–Mali Borak, the variations in their size and weight were often not considered.

The lack of quantitative analysis is a major problem when it comes to textile tools in the Central Balkans. Since it is evident that, without quantification and comparable data, we cannot further discuss this matter, it is of huge importance to examine technological and quantitative changes of spindle whorls and loom weights, as well as their deposition at the Late Neolithic settlements. A basic knowledge of textiles is necessary in order to understand the whole process, from the procurement of raw materials to the final production stage. Once again, only if we sum all available data related to spinning and weaving activities, can we gain a broader understanding of the relationship between textiles and Late Neolithic societies.

5 On the history of textile research in the Late Neolithic in the Central Balkans, see in detail Svilar 2016, in press.
6 Ninčić 2016, 9; Svilar 2016, in press.
7 İdvoresan-Stefanović, 2011.
8 Vitezović 2013.
9 Ninčić 2016, 30.
10 Van Zeist 1978; Borojević 2006; 2010; Filipović, Obradović 2013; Perić et al. 2015, 39.
11 The earliest evidence for flax use comes from the area of the Fertile Crescent and dates back to the 9th millennium BC. Cf. Karg 2011, 507.
12 Herbig, Maier 2011.
13 Ninčić 2011.
Interpreting Prehistoric Spinning Technology: Raw Materials and Tools

Prehistoric textile production was particularly dependent on access to raw materials. Bearing in mind that the examination of woollen production requires a slightly different approach, primarily a detailed zooarchaeological analysis, while at the same time its introduction in Late Neolithic is still an open question,14 the predominance of plant fibres in the Late Neolithic contexts worldwide, on the other hand, allows us to place the focus of this paper mainly on the processing of plant fibres.

Plant fibres for weaving were extracted from the stem or leaf of numerous plants, many of which are no longer used today. The most common were bast fibres: flax (Linum usitatissimum), hemp (Cannabis sativa) and nettle (Urtica dioica)15, while large numbers of species were used as colorants for dying or as pigments. Some authors emphasise that in Europe, there are over one hundred plant species that could have been used for dying and that almost every single plant could leave some trace on the fabric.16 In certain areas, there is even evidence of the simultaneous exploitation of the stems of wild growing plants together with cultivated ones.17 Based on all the above, it is evident that the number of plants used in textile production definitely exceeds the number of identified species, indicating a larger and more complex production process.

However, judging by archaeobotanical remains, and considering that the majority of preserved Neolithic and Chalcolithic fabrics and textiles are linen-made, it is a common assumption that flax was the most frequently used plant fibre in the production of textile worldwide.18 Some scholars even believe that the cultivation and processing of flax represents the most significant turning point at the beginning of the Late Neolithic.19 In certain cases, the absence of flax seeds in the archaeological record, on the one hand, and the presence of linen fabrics on the other, confirmed that flax was woven and traded over long distances from as early as the 8th millennium BC.20 However, since flax seeds were also used for food and medicine,21 the archaeobotanical remains are not always the most reliable argument for the indication of textile production, they rather need to be studied in relation to the archaeological context and in comparison with other data.

Nowadays, scholars are able to identify a myriad of natural raw fibres that could have been used for the production of textiles, but they all required some sort of preparation by spinning, resulting in the transformation of usually short and brittle fibres into long thread by twisting the fibre around its longitudinal axis. In other words, all natural fibres, whether plant or animal, require preparation by spinning in order to produce a thread of adequate length, hardness and flexibility.22 Among all the stages in the preparation of fibres prior to weaving – with flax, for example, the harvesting, and threshing of seeds, retting the stems and dressing – spinning is the process that is by far the most time-consuming.23 Thus, spinning is an indispensable step in textile production and at the same time it can be regarded as one of the most essential achievements of prehistoric people.

Unlike weaving, which requires some fixed structure and was, therefore, probably a prehistoric activity mainly conducted in the household, spinning could be practiced almost anywhere. This could be one of the reasons why, when studied in the archaeological record, the evidence of spinning is much less common in domestic areas. Spindle whorls, usually the only tools associated with this practice are, as a rule, far less numerous than loom weights.24 Moreover, loom weights and spindle whorls can rarely be found in the same context.25 The reason for such a deficiency partly lies in the fact that the practice of spinning could be conducted without the use of tools.

Initially, the practice of spinning was carried out without any equipment, so-called thigh spinning, but this method was by far the most time-consuming and it was additionally very difficult to prevent the thread from becoming tangled. The whole process became easier and more efficient by minimising the hand motions with the use of the spindle, which simplified the processing of short fibres such as cotton or wool,
but was not suitable for spinning long bast fibres.  

The role of the distaff, another implement commonly used, was to hold the raw fibres during spinning. The rare finds of wooden shafts and distaffs in the Near East revealed that two techniques – “supported spinning” which allows the spinning of fine threads, usually from short fibre; and “drop spinning” – a more advance technique, suitable for making longer and more even yarn, were simultaneously practiced in the Late Chalcolithic.  

The next step in the evolution of the spinning process was to put some kind of weight on one end of a spindle in order to extend and accelerate its circular movement. Given the frequency of spindle whorls made of clay at prehistoric sites worldwide, it seems that they were probably used for this purpose over a long period of time. Since spindles, distaffs and shafts were probably made of some perishable materials like wood or reed that could not be preserved or are hard to identify in the archaeological record, spindle whorls are considered to be the oldest tools related to spinning.  

Although there are usually made of clay, it seems that a wide variety of materials was used for making spindle whorls: steatite, basalt, limestone, ivory or animal bones. The results of extensive experimental research conducted primarily by CRT have shown that, apart from the quality of the fibre, the choice of spinning tool was also of great importance, i.e. two major functional parameters that largely affect the yarn are weight and the diameter of the spindle whorl. For example, spinning with a whorl of a large diameter will cause the process to be longer and slower, resulting in softer and less twisted threads, while on the other hand, with those that have a smaller diameter will be fast and short, thus producing stronger and more twisted threads. In other words, to produce a thin thread one should use a light spindle, and a heavier spindle for thicker thread. For instance, whorls with a larger diameter are suitable for plant fibres, heavier ones for linen, lighter for wool, etc. Also, based on the perforation diameter along with the use-wear analysis it is possible to reconstruct the position of the whorl.  

Although spindle whorls can vary in size and weight, some ratios are quite uniform, suggesting that some kind of standardisation must have existed. Hence, since the appearance of spindle whorls is considered as an advance in the spinning process, some authors suggest that it might have represented a significant change in social organisation, since it suggests the accumulation or redistribution of textiles. Since spinning is such a common activity in the societies who produce textile, it can represent a technological variable of major importance when discussing the daily activities of prehistoric artisans. Nonetheless, research on spinning has shown that its beginnings and development can be traced throughout prehistory, while the above described techniques and tools demonstrate the variety of options for this practice, implying a much higher level of complexity than previously thought.  

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The Introduction of Spinning Bowls: the Case of Belovode  
The archaeological site of Belovode is located in the vicinity of Petrovac na Mlavi in Eastern Serbia. Recent fieldwork included a complete systematic surface survey, at which time the size of the settlement was estimated at 90 hectares. Its occupation is dated to between 5400 and 4600 BC, thus primarily associating it with the Vinča culture group. However, a few pottery finds, although represented in small quantities, demonstrate the presence of elements associated with the Early Neolithic Starčevo group, the Late Chalcolithic Kostolac culture and the complex of Bubanj Hum I–Šâlcuţa–Krivodol, indicating the potential occupation of the given communities. 

Following the first excavation at the site, the settlement of Belovode was characterised as a Late Neolithic site. The role of the distaff, another implement commonly used, was to hold the raw fibres during spinning. The rare finds of wooden shafts and distaffs in the Near East revealed that two techniques – “supported spinning” which allows the spinning of fine threads, usually from short fibre; and “drop spinning” – a more advanced technique, suitable for making longer and more even yarn, were simultaneously practiced in the Late Chalcolithic. 

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lithic centre for primary copper mining and metallurgy. This assumption was further supported by numerous malachite finds in the vicinity of another copper source in the mine of Zdrolo, some 10 km from Belovode, and with the additional contribution of the discovery of a few surface finds, like for example a ceramic mould for casting axes found at Belovode. Since the principal aim of the investigations at the site of Belovode was to validate the above-mentioned hypothesis, all other aspects of the site remained in the shadow of the surmised metallurgy. Therefore, it is not surprising that finds related to textile production were almost completely neglected or only superficially examined, which was unfortunately a common practice at most prehistoric sites in the Central Balkans. For a long period, it was assumed that, apart from spinning activities at the site of Belovode, there was no corresponding evidence of textile production. The belief remained unshaken for years until recently when, with the discovery of two spinning tools in ceramic assemblages at most prehistoric sites in the Central Balkans. Unfortunately, due to the high level of fragmentation of the given finds, we are currently unable to provide an extensive discussion on several of the properties of these vessels. However, we need to bear in mind that only by drawing all of the available data together will we be able to shed new light on the topic of prehistoric textile in the Central Balkans. Therefore, although numerous other aspects of Late Neolithic textiles could be examined and tested, the study presented here focuses on the activities related to spinning, the processing of plant fibres and the use of spinning bowls.

Braun’s premise that ceramic vessels should be regarded as tools48 is considered to be one of the most important methodological breakthroughs in pottery studies, shifting the focus beyond endless typologies to the reconstruction of whole cycles of activities. The ceramic vessels we are dealing with here are generally termed “spinning bowls”,49 as it is assumed they were used in the process of spinning, primarily of plant fibres, since they are much easier to control in a moist condition. According to wall paintings in ancient Egypt and the Near East, they were used for so-called “wet spinning”, a practice in which usually two women simultaneously worked on wetting and tightening the fibres.50 This practice was widely spread across the Near East and in Mediterranean at the Late Bronze Age settlements of Tell el Ajjul and Tell Jerishe, and

43 Šljivar, Jacanović 1996; Šljivar et al. 2006; Radivojević et al. 2010.
44 The given spinning bowls were found during the recent processing of pottery from previous excavations on Belovode and Pločnik, in the course of writing my PhD thesis. Since then, I have become extremely interested in textile technologies and their impact on Late Neolithic societies.
45 The chronology of the site was established by D. Šljivar.
46 Svilar et al. 2006, 251.
48 Braun 1983.
49 First spinning bowl was found in Kahun in 1890, but it was not immediately linked with textile production. Cf. Maczińska 2012, 67.
50 Barber 1993; Idvorean-Stefanovic 2011, 229.
Fig. 1 and 2. Fragmented ceramic vessel – "spinning bowl" from the site of Belovode (author A. Đorđević)
Сл. 1 и 2. Фрагментирано керамично йошуде – „spinning bowl“ са локалитета Беловоде (автор: А. Ђорђевић)

Fig. 3 and 4. Fragmented ceramic vessel – "spinning bowl" from the site of Pločnik (author S. Živanović)
Сл. 3 и 4. Фрагментирано керамично йошуде – „spinning bowl“ са локалитета Плочник (автор: С. Живановић)
more so in Iron Age contexts at the sites of Beth Shean, Meggido, Tell Quasille and others.51

The earliest examples of spinning bowls from Egypt date to 12th dynasty, from the sites of Abu Ghalib and el-Lahun, while the largest number of finds has been found at Tell el-Amarna. Spinning bowls were also common at a number of Cretan sites during the 3rd millennium BC.52 However, closer territorial and chronological analogies come from south-eastern Europe, corresponding to the transition between the Early and Middle Chalcolithic. Spinning bowls of different sizes and shapes were found at the site of Djakovo in western Bulgaria, in the horizons that belong to the Dikili Tash–Slatino and Krivodol–Sâlciuţa–Bubanj Hum I, dated to around 4500 BC; at the site of Hotnitsa in the horizon that corresponds to the Gumenliţa–Karanovo VI complex, and at the site of Chardako (Slatino) belonging to the Dikili Taş–Slatino horizons. Finally, a unique find of a spinning bowl was discovered at the necropolis of Krasne–Kolonia in Poland, in the Lublin–Volhynian context and dated to 4100–3650 BC. Considering the fact that these finds are much older than the Mediterranean ones, A. Chokadziev and T. Chmielewski hypothesise that the first occurrence of spinning bowls corresponds with the beginning of the Chalcolithic on the Balkan Peninsula.53

Although the majority of scholars agree that the ceramic vessels in question were used in the process of spinning, some terminological dilemmas have always been present. While searching for a suitable term that would correspond to the actual function of ceramic vessels with an inner handle on the bottom, E. Barber initially suggested the term “twisting/plying” bowls. Subsequently, she suggested the more appropriate term “fibre wetting bowls”, with her main argument being an ethnographical analogy from distant Japan, where similar vessels were still in use, mainly for wetting nettles fibres.54 Considering the fact that spinners all around the world practice the use of saliva for the same purpose, A. Chokadziev and T. Chmielewski partly disagree with this explanation. According to their point of view, such vessels should rather be regarded as so called “tension pots” whose main function was for making yarn that is more exquisite by simultaneously twisting multiple threads at a precise speed.55 Although I agree with the latter, their argument is only partly valid; bear in mind that the constant running of the thread through the mouth can cause bleeding and mouth sores56 and, thus, in cases where larger production is involved, this practice could not have served as a long-term solution. Instead, with the use of ceramic vessels, the constant wetting of the fibres can be provided, while the inner handle at the bottom enabled drawing out and twisting, thus making longer and stronger yarn. Since spinning is a remarkably complex and time-consuming activity, there is no doubt that the use of these ceramic vessels could significantly facilitate and expedite the process.

Unfortunately, at Late Neolithic sites in the Central Balkans, no complete vessel has yet been reported. With the exception of a spinning bowl from the Kovačke njive, where it was possible to determine the total height and shape of the vessel, on all other examples only fragments of the bottom with the inner handle have been preserved and, consequently, little can be said about the overall shape, making it impossible to test the relevant variables of interest. Nevertheless, taking into account the observable morphological characteristics, the mentioned finds seem to be the best candidates for spinning bowls in Late Neolithic contexts.

However, spinning bowls from the Central Balkans are somewhat different from the above-mentioned examples. The main characteristic that distinguishes examples from Belovode and Pločnik from other similar vessels is the number of perforations on the handle. While the example from Kovačke njive has only one strap handle, the vessels from Pločnik have either one or two perforations, while the spinning bowls from Belovode have even four to six perforations on the inner handle (fig. 5a–b). Perhaps some parallels can be drawn from the territory of the Near East, from the examples from Tell el-Farkha with four holes on one loop.57 Apart from tightening the yarn, their function was to separate the threads as well. On the other hand, since the diameter of the perforations on the Belovode vessels are extremely small, another parallel can be drawn with vessels from Bulgaria and Poland. It has commonly been assumed that smaller perforations

51 Dothan 1963, 97; Chokhadziev 2000, 117; Чохацен 2003, 18–19; Chmielewski 2009, 224.
52 Dothan 1963, 97; Chokhadziev 2000, 117; Чохацен 2003, 18–19; Chmielewski 2009, 224.
53 Chokadziev 2000, 121, fig. 9.11; Чохацен 2003, 18, fig. 3, 19, 19, 5–6; Chmielewski 2009, 224, fig. 2.1.
54 Barber 1993, 72–73.
55 Chmielewski 2009, 225.
56 Idvorean-Stefanovic 2011.
57 Maćzińska 2012, 66, fig. 1–3.
served for making yarn more compact by constantly pressing it while it was passed through. Additionally, one possible explanation of this phenomenon could be that there was more than one person involved in the spinning process.

Judging by the morphological characteristics of the finds, it seems that the primary aspects of these vessels was their openness, which provided easier access to the content and the inner handle on the bottom, through which the yarn could be passed. Since a few examples from south-eastern Europe have additional horizontally perforated handles as the largest protrusion of the body and extremely low stability, it is assumed that they must have been suspended during the working process, a possibility that cannot be excluded in the case of examples from the Central Balkans.

When discussing vessels’ shape and morphology, it is crucial to determine whether all the vessels with internal handles should be classified as spinning bowls? Could it be that some vessels with similar morphological characteristics served different functions? For example, among the Aztecs in Prehispanic Mesoamerica, ceramic vessels called spinning bowls, though slightly different in shape and with no inner handles, principally served to support the spindle in them during the process of spinning cotton fibres.

Hence, from all the above, it is evident that there are a variety of ceramic vessels called spinning bowls, and although they might have some similar morphological characteristics, they probably had a different function in the given process, thus implying that there were many forms of spinning with the use of ceramic vessels. The differences in the shape and size of these finds suggest that they were manufactured in different sizes for specific uses, probably for the processing of different kind of fibres. In order to further discuss Late Neolithic spinning bowls in the Central Balkans, a revision of ceramic assemblages is desperately needed. It is of great importance to determine whether objects possibly interpreted as lids might instead be reinterpreted in a spinning context. Additionally, future research should focus on the identification of possible wear traces, the presence of abrasion around perforated handles and on the interior of the base.

In conclusion, if the invention of spinning bowls represents an improvement in the spinning practice,

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58 Chmielwski 2009, 225.
59UCHI 2003, 18, fig. 4, Chmielwski 2009, 226.
60 Smith, Hirth 1988, 350.
does it likewise indicate a significant change in textile technology at the end of the Neolithic, and what is its significance in the broader socio-economic context?

Conclusion

When discussing the economy of Late Neolithic societies, earlier scholars rarely paid much attention to textile production; it was rather regarded as a minor domestic activity practiced by prehistoric women in their leisure time. However, since it has been proved that spinning was an indispensable step in making textiles and that every operation in this dynamic process had to be carefully planned and organised, can we therefore dare to assume that maybe there was no work of greater importance than the production of textiles for women at the time? How valuable was textile in the Late Neolithic? Was it already an item of exchange? Is it possible that high volume and specialised production occurred as early as the end of the Neolithic?

There is no doubt that data related to spinning and weaving will boost our knowledge of the Late Neolithic societies in the Central Balkans, their social life, the way they utilised their environment and the basics of their economy. Therefore, in order to answer some of the above-mentioned questions, we need to expand our knowledge, primarily through ethnographic data about the craft itself. Judging by the quality of spindle whorls and spinning bowls, we must assume a higher level of spinning and weaving technology and maybe the presence of skilled artisans. As for the low frequency of late finds in ceramic assemblages, I contend that they were not immediately recognised and scholars were not aware of their importance.

The scarcity of direct textile evidence and the poor documentation of textile tools must not be taken as an invincible obstacle. Given the nature of the archaeological record, it is clear that even if we had complete knowledge of these processes, our conclusions would still be uncertain.

However, despite the lack of certainty, the results presented here show that there is a range of secondary evidence at Late Neolithic settlements in the Central Balkans and that by studying each of them we can undoubtedly raise some important questions. Although it is entirely plausible that textile production during the Late Neolithic was highly developed, in order to support such a claim we need to study and discuss all available evidence that can be related to textiles.

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Searching for Late Neolithic Spinning Bowls in the Central Balkans (21–32)

Karg 2011—S. Karg, New research of the cultural history of the useful plant Linum usitatissimum L. (flax), a resource for food and textiles for 8,000 years, Vegetation History and Archaeobotany 20(6), 2011, 973–990.


Maier, Schlichtherle 2011—U. Maier, H. Schlichtherle, Flax cultivation and textile production in Neolithic wetland settlements on Lake Constance and in Upper Swabia (south-west Germany), Vegetation History and Archaeobotany 20(6), 2011, 567–578.


Iako se tehnologija izrade tekstila smatra jednim od veoma vjernih i ranih zanata, njegov izučavanje je dokore bilo u potpunosti zametano, prvenstveno zato što tekstil ne ostavlja gotovo nikakav trag u arheološkom zapisu. Međutim, u posljednje dve decenije pomenduta disiplina zapravo je neverovatno napredovala u svetu, a isto tako je i faktor tehnološkog napredka koja je dovela do napredka u umećenom tekstilu. S druge strane, kada se postavi čitav proces izrade tekstila u periodu kasnog neolita na prostoru centralnog Balkana, situacija je znatno drugačija. Iako se tekstilna industrija u datom periodu uvek nije olakšala u pitanju, tekstilne alatke poput tegova za razboj i prilažena koja se uvek nisu koristile u procesu izrade tekstila, tekstilni materijal je olakšao pitanje izrade tekstila u periodu kasnog neolita.


Keramika i tekstilna industrija u periodu kasnog neolita na prostoru centralnog Balkana je olakšala pitanje izrade tekstila u periodu kasnog neolita na prostoru centralnog Balkana. Naime, analogous za mnoge tekstilne posude mogu se naći u bronzično-donskim kontekstima na širokoj teritoriji Bliskog istoka i Mediterana, kao i u znatno manjoj meri, u eolitskim kontekstima jugoistočne Evrope gde su se, najverovatnije, koristile u procesu izrade tekstila-kvašeće i zatezave biljnih vlakana. Njezin značaj je u tome što ovisi o tome kontrolu tekstilnoj produkciji. Keramika i tekstilna industrija u periodu kasnog neolita na prostoru centralnog Balkana je olakšala pitanje izrade tekstila u periodu kasnog neolita na prostoru centralnog Balkana. Naime, analogous za mnoge tekstilne posude mogu se naći u bronzično-donskim kontekstima na širokoj teritoriji Bliskog istoka i Mediterana, kao i u znatno manjoj meri, u eolitskim kontekstima jugoistočne Evrope gde su se, najverovatnije, koristile u procesu izrade tekstila-kvašeće i zatezave biljnih vlakana. Njezin značaj je u tome što ovisi o tome kontrolu tekstilnoj produkciji.